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LEARNING TO SOAR: PARTNERING WITH UNDERREPRESENTED STUDENTS IN RESEARCH

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Undergraduate Research as a Social Justice Initiative at Bridgewater State University

Undergraduate research (UR) has been a signature commitment at Bridgewater State University for over 15 years. A substantial dedication of resources and faculty development for UR have built a campus culture of engaging students in faculty-mentored scholarly work across the disciplines. The commitment to UR at Bridgewater State is an essential part of the university's broader commitment to social justice. That's because traditionally underserved students—who make up the majority of our students at Bridgewater State—may gain the most from UR (Brownell & Swaner, 2010; Gregerman, 2009; Kuh, 2008; Locks & Gregerman, 2008).

Two-thirds of our 10,000 undergraduates are first in their families to attend college, are students of color, and/or are eligible for Pell grants. They work, on average, over 20 hours per week during the academic year, significantly more than their peers at other four-year institutions. Over 40% are transfer students from two-year colleges, and 60% commute to campus.

Benefits of Undergraduate Research, Especially for Underrepresented Students

Evidence abounds regarding the tremendous benefits to students from all demographic groups of collaborating with faculty on scholarly work (Astin 1997; Brownell and Swaner 2010; Kuh 2008; Lopatto 2003). UR leads to improved student retention and engagement (Kuh, 2008) and fosters critical thinking, effective communication, and complex problem-solving—among the most valuable skills students can develop during their undergraduate careers (Hart Research Associates, 2015).

Especially compelling is the evidence that faculty-student collaborations are “profoundly beneficial” for underrepresented minority students (Schwartz, 2011, p. 536). At Bridgewater State, for instance, students of color who participate in early research experiences are retained at a significantly higher rate and have higher 4- and 6-year graduation rates than their peers who are not involved in scholarly collaborations with faculty. UR fosters underrepresented students' identity development, career direction and other planning for the future, enculturation into academia, and pursuit of post-baccalaureate educational opportunities (Brownell & Swaner, 2010; Campbell & Campbell, 2007; Guterman, 2007; Ishiyama, 2007; Kuh, 2008; Locks & Gregerman, 2008; Lopatto, 2003; Malachowski, 1996; Osborn & Karukstis, 2009; Russell, Hancock & McCullough, 2007; Seymour, Hunter, Laursen & Deantoni, 2004; Shore, 2005; Wilson et al., 2012). First-generation and low-income students do not typically have the networking opportunities that some students with college-educated parents can utilize. Collaborating with faculty on scholarly work helps “level the playing field” for such students.

Student-Faculty Collaboration is at the Heart of Undergraduate Research

Kuh and O'Donnell (2013) argue that the deepest engagement in UR occurs when students participate in the research process *in close working relationships with faculty teacher-scholars*. The Council on Undergraduate Research (CUR) definition of UR reflects this centrality of student-faculty partnership to genuine high-impact learning: "Undergraduate research is an inquiry or investigation conducted by an undergraduate *in collaboration with a faculty mentor* that makes an original intellectual or creative contribution to the discipline" (emphasis added; Wenzel, 1997; see also Lopatto, 2003, and Osborne & Karukstis, 2009). The quality of the student-faculty relationship is especially important for underrepresented or at-risk students, who may not have other supports for taking on academic challenges (Campbell & Campbell, 2007; Gregerman, 2009; Ishiyama, 2007; Kuh, 2008; Locks & Gregerman, 2008; Lopatto, 2003; Malachowski, 1996; Osborn & Karukstis, 2009; Russell, Hancock & McCullough, 2007; Seymour, Hunter, Laursen & Deantoni, 2004; Shore, 2005; Wilson et al., 2012).

Student Opportunities as Apprentice Researchers (SOAR) Program

Bridgewater State University's SOAR (Student Opportunities as Apprentice Researchers) program matches underrepresented students with faculty in research partnerships that facilitate faculty scholarship and improve the retention and success of students from underserved groups. A foundational premise of SOAR is that faculty collaborating with underrepresented students go well beyond the advice-giving and knowledge-dispensing often associated with mentorship to *power-sharing* and *advocacy* (Davis, 2007; Gonzáles, 2006; Ishiyama, 2007; Nagda, Gurin & Lopez, 2003; Schwartz, 2011)—effectively transforming the UR "mentor" role to one of a true partner.

Through power-sharing collaborations, faculty can be the bridge between "the neighborhood" (or family) and academia, helping minority students negotiate academia without betraying cultural identities and even alleviating the "battle fatigue" of macro- and micro-aggressions, systemic racism, obstacles to staying in college, and isolation on campus (Campbell & Campbell, 2007; Davis, 2007; Schwartz, 2011; Wilson et al., 2011).

SOAR Program Logistics

SOAR is funded by federal Work-Study, part of the financial aid award for low-income students. SOAR positions are advertised on Bridgewater State's student-employment website as research assistantships with professors who want to collaborate with students on ongoing projects. The position announcement notes that SOAR Work-Study positions provide students with valuable connections with professors and excellent preparation for their own research projects and future careers. As faculty from all four undergraduate colleges are involved in SOAR, the position announcement emphasizes the variety of interesting research studies and creative projects in which students can participate.

Students with Work-Study awards apply for SOAR positions just as they would any other Work-Study job at Bridgewater State, by sending an email indicating their interest—in this case, to the Director of Undergraduate Research, who subsequently invites them to a small-group interview to ascertain their interests and skills.

Simultaneously, faculty interested in partnering with students on their scholarly work are invited to complete an online form in which they briefly describe their research, identify aspects of the work that may be appropriate for undergraduate collaborators, and list any required skills or other qualifications. Faculty are asked to write the project descriptions in nontechnical language geared toward undergraduates.

The Office of Undergraduate Research coordinates the matching of faculty and students according to related interests and necessary skills. When there is not an exact disciplinary correspondence—such as when more business majors apply than there are business faculty available—or when students are undecided about their majors—students and faculty are matched in allied fields (e.g., a Criminal Justice major in a Psychology lab) or by shared interests (e.g., a Spanish major collaborating on a Social Work project involving English Language Learners). Students and faculty are introduced either in person or by email, schedule an initial meeting about mutual expectations and goals, and then inform the Office of Undergraduate Research about whether it seems to be a good match.

Piloting the SOAR Program

The SOAR program was piloted during the 2014-2015 academic year with faculty-student partnerships in geology, psychology, elementary education, biology, business management, and social work. The students engaged in a diversity of research tasks, including entering and analyzing data, running experiments, locating and reading peer-reviewed journal articles, participating in group/lab meetings, and learning laboratory techniques. In 2015-2016, 20-25 student-faculty research partnerships will be established through SOAR—in multiple disciplines in the arts, humanities, social sciences, and natural sciences.

Benefits of SOAR

Clarification of Students' Academic and Career Goals. Interviews of students from the pilot year of SOAR demonstrate how they benefited from skill development that will serve them well in future academic work as well as from clarification of their choice of major, plans for independent research, and career direction. When asked about the influence of the SOAR program on his college career, one male, first-generation, student of color explained, “When I came to college, I didn’t have a specific major. I was undecided, but once I started working with [my professor], I started to think about social work. I really like working with people and learning about diversity.”

SOAR students described a variety of skills they developed in working with faculty on scholarly projects. They gave examples of critical thinking and problem solving, entering as well as analyzing data, becoming practiced in searching library databases to locate peer-reviewed literature, and improving their oral and written communication skills. One student, for instance, said she learned to utilize reference management software for her SOAR work that she now uses to organize research papers and presentations assigned in her classes. One of her instructors asked if she would be willing to present to the class about the software application, so she was able to pass on valuable skills to her classmates.

Another student expressed excitement about starting his own psychology research study, after less than a year in a professor's research group: "[My professor] was the one who actually gave me a couple of ideas of how to do the study that I am thinking of. [...] On Friday, the four of us [in the research group] were brainstorming ideas in our meeting for *my* project." In a separate interview his faculty mentor explained that she views the students working in her lab, including her first-year SOAR student, as her research partners. "After a semester or two in which they're learning about the various research studies in the lab, they're often ready to propose their own study—one that they're going to run, with support from the rest of us."

A faculty member in social work has similar expectations for her SOAR students to have a say in the research in which they are engaged. Students join ongoing projects at first, learning the methods and expectations of the research. After training in research ethics, data analysis, and various protocols, they are invited to help plan the next phases of the research. At the end of the academic year, it was clear that the SOAR students had grown in self-confidence since the day they had been interviewed for the program; they were eager to discuss their research and how the experience was already benefiting them.

Relationships with Faculty. In their end-of-year interviews, SOAR students highlighted the importance of their relationships with their faculty research partners. Some spoke of being "proud" of working with professors and getting to know their professors much better than they would in a class setting. They used phrases such as "we decided" and "our research project," demonstrating the collaborative nature of the relationship.

At the same time they indicated how much it meant to them to receive positive feedback from their professors—to know they were on the right track and that they were making meaningful contributions to the research. One student explained, "When I had to analyze the data and send it to [my professor] for the meeting, I thought about it a lot and how to present it best... When [she] emailed that the data looked good, I was very happy. I cannot even tell you how I felt. Even though I was afraid of what I was doing, I was grateful and wanted to do more."

Faculty gains. Throughout the first year of the SOAR program, the Office of Undergraduate Research kept in regular email contact with faculty mentors and hosted two lunches for SOAR mentors to discuss their experiences, successes, and difficulties. While some faculty mentioned the challenges of mentoring students with complicated personal and financial situations, they emphasized the personal satisfaction of working closely with students.

One faculty member expressed a point echoed by several others: "I might be able to get the research done more quickly if I were doing it on my own, but I'm not in this career to do research on my own. It's very satisfying for me to teach the next generation of researchers, to see them get excited about doing work in our field." Another noted that seeing students becoming "truly interested in the project" gave renewed purpose to the work.

Faculty were also inspired by their students' growth over the course of just two semesters. An education professor said, "I noticed significant changes in [my student's] self-confidence," and a psychology professor expressed delight in watching her student become increasingly comfortable interacting with the rest of the research team, enough so to propose a research study of his own.

Future of SOAR

While SOAR promotes partnerships between underrepresented students and faculty researchers, the program has likewise benefited from a form of partnership between its administrators and its student and faculty participants. The first year of the SOAR program (2014-2015) provided us with several insights that have informed the second year. In response to student and faculty needs, we are developing mentoring resources for faculty and a series of professional development workshops for students in order to expand the SOAR program in the 2015-2016 academic year.

For faculty, we are creating a handbook that includes key information from the literature on UR mentoring, such as the benefits of UR, especially for underrepresented students; evidence-based practices for collaborating with undergraduates; and information about grant funding and presentation and publication opportunities for UR. SOAR faculty are invited to monthly discussions aimed at supporting them in working effectively with first- and second-year students from underrepresented groups.

In order to support SOAR students' professional development and beginning research skills, we have developed a series of bi-monthly student workshops on a wide range of topics, including searching library databases, writing about research experiences in cover letters and resumés, and managing multiple responsibilities. We will supplement the workshops with online modules focusing on such topics as email etiquette, time management, peer-review processes, research ethics, and different modes of sharing scholarly work. The time students take to participate in the workshops and online modules will be part of their paid hours.

A graduate assistant from Bridgewater State's M.S. in Clinical Psychology program has joined our administrative team this year, to serve as a near-peer mentor for SOAR students and assist with curriculum development for the student workshops. At her suggestion, we have added plans for social events and other informal gatherings for SOAR students and faculty. In getting to know each other outside of the research setting, and in meeting SOAR participants from other disciplines, students and faculty may discover further connections that foster their collaborations. Together, we are learning to SOAR and thriving from the research partnerships developing across campus.

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